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ined, pp. 287-353 (best thing in the number, and first rate). Ueber einige neuere Arbeiten über das Gehirn, Prof. Dr. Pansch, in Kiel, 354-365; A review of Poesche's "Die Arier," A. Ecker; Ethnographisches aus der neueren Reiseliteratur, von F. Ralzel; A review of the transactions of learned societies and associations; The Fourth Russian Archæological Congress at Kasan; The British Association; International Congress; American Association. In this number we have the second of the series of catalogues of anthropological museums of Germany in the list of the Anthropological Collection of the University of Göttingen, founded by Blumenbach, by Dr. J. W. Spengel; and Catalogue of the Anthropological Collection of the University of Freiburg, by Alexander Ecker. Everything is nicely done in these lands.

M. Emile Cartailhac, the editor of *Matériaux pour l'Histoire de l'Homme*, sends us a pamphlet of 103 pages, entitled "L'Age de Pierre dans Les Souvenirs et Superstitions populaires, par M. Emile Cartailhac, avec 68 gravures et 2 planches dans le texte, Paris. C. Reinwald, 1878. The author has been engaged upon this study for some time past and has contributed several papers bearing thereupon to the *Matériaux*. We give the contents of the seven chapters:

- I. La pierre de foudre, le coin du tonnerre.
- II. Des haches de pierre transformées en amulettes.
- III. Pointes de fleches en silex montées en argent et en or.
- IV. Les bijoux et les charmes sous forme de pointes de flèches et de hachettes.
- V. Le rôle des silex taillés dans les cérémonies religieuses en Orient et en Occident.
- VI. De la transition de l'âge de pierre à l'âge de bronze.
- VII. L'âge de pierre et les auteurs classiques de l'antiquité.

The following papers have come to notice since our last issue: The Practice of Medicine and Surgery by the Aboriginal races of the South-west, by Dr. W. J. Hoffman, Philadelphia Reporter, Feb. 22d, 3 pp.—The Ancient Cities of Cibola, Rev. S. Jackson, Rocky Mountain News, Jan.—The Failures and Fallacies of Prehistoric Archæology, Rev. J. A. Waddell, Southern Presbyterian Review, Oct.

GEOLOGY AND PALÆONTOLOGY.

A DECADE OF DOGS.—The Truckee beds of the White river formation in Oregon have yielded a larger number of species of *Canidæ* than any other American horizon, while representatives of other families of *Carnivora* are much less common. Ten species of dogs have been determined by Prof. Cope, which are referred to five genera, viz: *Enhydrocyon* Cope; *E. stenocephalus* and *E. basilatus*; *Tennocyon* Cope; *T. altigenis* and *T. coryphæus*; *Icticyon* Lund.; *I. crassivultus*; *Canis* L.; *C. geismarianus*; *C. lippincottianus*; *C. cuspidigerus*; *C. gregarius*; *Amphicyon* Lart.; *A. (?) vetus*.

THE CLASSIFICATION OF ROCKS.—Mr. M. E. Wadsworth publishes in the Bulletin of the Museum of Comparative Zoölogy of Cambridge¹ an abstract of a thesis on the classification of rocks, from which we extract the following: “No natural distinction can be drawn between rocks of the Tertiary and Pre-Tertiary ages, since the glass and fluidal inclusions, crystalline texture, and the various other characters fail, exactly where they are most needed, to divide the rocks into older and younger, as is done by the majority of lithologists.

“The writer believes that rocks should be studied, by beginning with their most compact or glassy state, and by then tracing them through to the most crystalline form, following every alteration, whether it be chemical or mechanical. Every rock that can be traced in this way forms a distinct species, whatever may be its state,—whether amorphous, glassy, crystalline, fragmental, tufaceous, or otherwise,—and whatever may be its age. The modifications, if of sufficient importance, form varieties simply, which should be included under the specific name. A natural classification of rocks must be empirical, and must be based on the rock as a whole, while a natural mineralogical classification is an impossibility, as it is based on part of the characters only.

“If we except the veinstones and the majority of those rocks that are composed of one mineral, the species of rock forming the crust of the globe are very few. Believing that this earth is a cooling globe, all manifestations of internal heat giving rise to rocks (the only thing with which we are at present concerned) are here termed volcanic, and all such products are styled volcanic rocks. The testimony of the rocks is that all sedimentary forms came primarily from volcanic ones, volcanic energy having been more active than now in the past ages of the globe. This derivation is consonant with that which we see taking place at the present time, and agrees with the law of dissipation of energy; while the reverse view, at present popular,—that eruptive rocks were derived from sedimentary ones,—is contrary to the positive testimony of the rocks themselves, to the facts that are observed in nature, and to physical laws.

“Taking the consolidation of any rock as its initial point, the minerals and rock fragments contained therein fall naturally into three classes: 1. Minerals and fragments of prior origin; 2. The products of that consolidation; 3. The products of alteration and infiltration.

“These three classes are most marked in the volcanic rocks, as is natural; the first two predominating in the younger and least altered, the latter in the older and more altered ones, while the first and third classes predominate in sedimentary rocks. These alterations apparently take place through the agency of the ordi-

¹ Vol. V., No. 13, 1879.

nary percolating waters, which are not necessarily hot. The minerals and fragments of the first class, I find, fall into two divisions in the volcanic rocks: 1. Those that are characteristic of the rock species, and which were probably derived from the refusion of this species, that had crystallized at the depth at which it was prior to the eruption; 2. Those that are accidental, probably caught in the passage upward or during the outflow. Similar divisions are found, to a greater or less extent, in the sedimentary rocks, according as they were derived from one or more rocks, and also according to the preponderance of different rock fragments and minerals in them. Details of these occurrences will be given in the final publication.

"Believing that new names should not be employed, except in cases of absolute necessity for filling gaps in the classification, the effort has been made to retain all the old names that are necessary, in their most general use, and to reject all needless ones, that can be so dealt with.

"Starting with the basic rocks, I shall pass from the glassy states to the most crystalline, from the least altered to the most altered, and from the massive to the clastic, keeping on a similar range of chemical composition, and tracing the various gradations step by step. I shall also, in like manner, trace the gradations from the basic to the more acidic rocks, showing the gradual changes that exist in that direction as well. Since, owing to the necessities of the case, both in the use of these observations in a thesis and in giving a post-graduate course in lithology in this Museum, my work was made public before it was entirely completed, it has been deemed necessary to publish this abstract in advance. Several matters of detail yet remain to be worked out, which may modify some of the general views. All that is liable to be so modified must, therefore, be withheld for the present."

GEOLOGICAL AND PALÆONTOLOGICAL NEWS.—M. Mariano Barcena continues his researches on the geology and palæontology of Mexico in the *Anales del Museo Nacional de Mexico*.—Dr. Lydekker publishes descriptions of extinct reptiles of India in the memoirs of the Geological Survey of India. He describes *Sauropterygia*, *Crocodylia*, *Theromorpha* and *Dinosauria*; including *Dicynodon*, *Titanosaurus indicus*, *Plesiosaurus*, etc. Dr. Lydekker in another paper describes an extinct *Quadrumanes* from the Sewalik of Punjab, of rather larger size than the orang outang, which he names *Palæopithecus sivalensis*.—Mr. C. D. Walcott of Albany, N. Y., continues his researches on the structure of the *Trilobites*, and gives us an account of the metamorphoses of *Triarthrus beckii* of the Trenton limestone. He also discusses the Utica slate and its fossils.—The Rev. W. H. Barris publishes in the proceedings of the Davenport Academy of Sciences an account of the local geology of Davenport, Iowa, and describes some new Corniferous fossils.